CASE WITH COMMUNICATION MODULE HAVING A DOUBLE PIN HINGE FOR A HANDHELD COMPUTER SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention generally relates to the field of cases for handheld computer systems. More particularly, the present invention relates to the field of multi-functional cases for handheld computer systems.

2. Related Art

Computer systems and other electronic systems or devices (e.g., personal digital assistants) have become integral tools used in a wide variety of different applications, such as in finance and commercial transactions, computer-aided design and manufacturing, health care, telecommunication, education, etc. Computers along with other electronic devices are finding new applications as a result of advances in hardware technology and rapid development in software technology. Furthermore, the functionality of computer systems is dramatically enhanced by coupling these stand-alone computer systems together in order to form a networking environment. Within a networking environment, users may readily exchange files, share information stored on a common database, pool resources, and communicate via electronic mail (e-mail) and via video teleconferencing. Furthermore, computer systems or other types of electronic devices which are coupled to the Internet provide their users access to data and information from all over the world.

A personal digital assistant (commonly referred to as a PDA) is a handheld computer system. It is appreciated that the personal digital assistant is a portable handheld device that is used as an electronic organizer which has the capability to store a wide range of information that includes daily appointments, numerous telephone numbers of business and personal acquaintances, and various other information. Furthermore, the personal digital assistant has the ability to connect to a personal computer system, enabling the two devices to exchange updated information or to synchronize their respective stored information. Additionally, the personal digital assistant can also be connected to a modem, enabling it to have electronic mail (e-mail) capabilities over the Internet along with other Internet capabilities. Moreover, an advanced personal digital assistant can have Internet capabilities over a wireless communication interface (e.g., radio interface). Also, the personal digital assistant can be coupled to a networking environment.

Some users of the personal digital assistant purchase accessories such a conventional case. The conventional case for the personal digital assistant typically includes a front cover and a back cover coupled to the front cover via a single pin hinge, whereas the personal digital assistant is inserted between the front and back covers. In general, the conventional case is comprised of hard materials including, for example, hard plastic, metal, or wood; soft materials, including, for example, leather or soft plastic; or a combination of both. The conventional case protects the personal digital assistant against damage and maintains the clean and neat appearance of the personal digital assistant.

In particular, users of the personal digital assistant purchase the conventional case to protect the data input device (e.g., handwriting recognition device or digitizer) and the display device of the personal digital assistant, to protect the personal digital assistant against damage from being accidentally dropped from a pocket or briefcase or during use, and to prevent accidental activation of the buttons of the

personal digital assistant. Moreover, the conventional case does not allow the user to view the display device or access the buttons of the personal digital assistant when the personal digital assistant is placed in a conventional cradle which facilitates synchronizing the data of the personal digital assistant with the data of a personal computer system and which facilitates recharging the batteries of the personal digital assistant, whereas the conventional cradle includes a connector which couples to the communication port (e.g., a serial communication port) of the personal digital assistant. Thus, the user typically separates the conventional case from the personal digital assistant before placing the personal digital assistant in the conventional cradle.

Typically, capability for wireless communication via a radio frequency (RF) link is provided to the personal digital assistant by coupling a wireless communication peripheral to the personal digital assistant and to a communication port (e.g., a serial communication port) of the personal digital assistant. Usually, the wireless communication peripheral latches to the back of the personal digital assistant or couples to an end of the personal digital assistant, without providing protection for the data input device (e.g., handwriting recognition device or digitizer) and the display device of the personal digital assistant. Typically, the wireless communication peripheral is comparable in size and weight to the personal digital assistant, adding appreciable bulk and thickness to the form-factor of the personal digital assistant. The conventional case is unable to receive the personal digital assistant while the wireless communication case is coupled to the personal digital assistant, forcing the user to choose between protecting the personal digital assistant and adding RF wireless communication capability to the personal digital assistant.

Moreover, when the wireless communication peripheral is coupled to the personal digital assistant, the user is unable to place the personal digital assistant in the conventional cradle which facilitates synchronizing the data of the personal digital assistant with the data of a personal computer system and which facilitates recharging the batteries of the personal digital assistant, whereas the conventional cradle includes a connector which couples to the communication port (e.g., a serial communication port) of the personal digital assistant. Thus, the user typically separates the wireless communication peripheral from the personal digital assistant before placing the personal digital assistant in the conventional cradle.

Unfortunately, the user faces a difficult choice in deciding on the carrying configuration for the personal digital assistant. In one option, the user can carry the personal digital assistant coupled to the wireless communication peripheral, leaving the personal digital assistant vulnerable to damage from accidents and to contamination from dirt, dust, and debris. In another option, the user can carry the personal digital assistant in the conventional case, leaving the personal digital assistant without RF wireless communication capability. In yet another option, the user can carry the personal digital assistant, the conventional case, and the wireless communication peripheral, switching between the conventional case and the wireless communication peripheral when necessary. However, in this option, the user may find that he/she has insufficient space (e.g., in a pocket, briefcase, etc.) to carry all three objects and that he/she is susceptible to losing or misplacing either the conventional case or the wireless communication peripheral. Moreover, in this option, the user may find it inconvenient and obtrusive to carry all three objects since convenience, reduced-obtrusiveness, and compact form-factor are important fac-